Synopsis

Title of the Project: Real Time Eye Blinking For Password Authentication

Area of Project: Image Processing, Computer Vision, Deep Learning

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Introduction

Today, the net has gone into our day to day routine and every one of the administrations are mixed on-line. on the far side perusing the news, attempting to find data, and different danger free errand, we have conjointly gotten to know different gamble related work, for example, paying exploitation Master cards, checking/forming messages, on-line banking, etc. while we tend to see the value in its benefits, we tend to square gauge putting ourselves in risk. [1] Eye following is that the technique for police examination the consideration area across video outline. The movement of the consideration comparative with the apex may likewise be extra interest. Eye following is essential for improvement and investigation regions like visual frameworks, mental examination, logical discipline and items style.[2] An eye following framework is partner mix of a group of gadgets and related programs for mensuration eye positions and development, and relating the outcomes to a comparable eye across pictures non inheritable successive over the long run. Today, the Web has gone into our everyday life and every one of the administrations have been moved on the web. [3]Past perusing the news, searching for data, and other danger free undertaking, we have additionally become familiar with other gamble related work, for example, paying utilizing charge cards, checking/making messages, web based banking, etc. [4]While we value its benefits, we are setting ourselves in danger. [5] Eye following is the most common way of distinguishing the eye area across video outline. The movement of the eye comparative with the head may likewise be more interest. Eye following is significant for improvement and examination regions like visual frameworks, mental investigation, mental science and item plan. An eye global positioning framework is a joining of a bunch of gadgets what's more, related programs for estimating eye positions and development, and connecting the outcomes to a similar eye across pictures gained successively over the long run. One of the security necessities for general terminal verification frameworks is to be simple, quick and secure as individuals face verification instruments consistently and must validate themselves utilizing regular knowledge based approaches like passwords. Be that as it may, these strategies are undependable on the grounds that they are seen by pernicious eyewitnesses who use observation strategies, for example, shoulder-surfing (perception client while composing the secret key through the console) to catch client validation information. Additionally, there are security issues because of unfortunate communications between frameworks what's more, clients.

Literature Survey

Asha Rani K P et al. stated that [1] entry of PIN using blinking method. Personal identification numbers are used for user authentication and security. Password verification using PINs requires users to enter a physical PIN, which can be vulnerable to password breakage or hacking via shoulder surfing or thermal tracking. PIN authentication with eye blinks entry techniques, does not leave any kind of physical footprints behind and therefore offer a more secure password entry option.

Mahesh TR, M.Sai Ram, N.Sai Ram [2] presents a real-time application we combine eye blinkbased PIN entry, and face detection and OTP(One Time Password) to avoid shoulder surfing and thermal tracking attacks.

Dr. Sharavana Kumar R, Yashaswini S, Deepakraj N et al. [3] presents a time period application to avoid. The personal identification numbers (PINS) is a common user authentication method for many applications, such as money transaction is online banking application and automatic teller machine(ATMs).unlocking personal devices ,event centers, shopping malls, Medical centers, schools/collages and opening Doors.

Hananeh Salehifar & Peyman Bayat [4] introduces the new Eye Gesture Blink Password authentication system (EGBP). The system is based on four basic ideas: system design, the algorithm of finding fixations without having to track pupils in all frames, allowing users to blink as part of the password and the new method of finding the user password using the angle formed between the fixations. EGBP has several basic advantages compared to existing authentication systems including the no need for a commercial eye tracker that lowers the system's cost, removing the calibration step that increases the speed and requires less processing, and choosing a maximum length code that reduces the likelihood of the likeness of the selected password and increases security.

 Bhoomika.D, Deekshitha, Manvitha, Sinchana B, Dr. Ramesh et al. [5] stated that presents a realtime application we combine eye blink-based PIN entry, and face detection and OTP (One Time Password) to avoid shoulder surfing and thermal tracking attacks.

Problem Statement

To Design and Implement PIN Verification using retina and eye blink Detection.

Objectives

- To detect eye blink detection

- To detect retina

- To generate Password

- Python based application as Interface between user and system.

Methodology

In a proposed methodology, we are proposing PIN verification with limited set of supervised data. In this method we take first video from user. We detect the face, Eyes and its blink. After detection of eye by haar-cascade classifier we saved those features into csv. Then train the model for eyes features with respect to label. We are going to solve accuracy issue in matching PIN to existing PIN with accurate stage predictions.

The first page will be registering page where the user need to register by filling up the details of name, email, password. Then following the signing in page will be displayed where user needs to login again. The layered process will consist of eye blink pattern first and then the iris will be recognized. Once the user is authenticated message will be prompt saying authenticated user, whereas if the user details are not matched with database then message will prompt as user not authenticated.
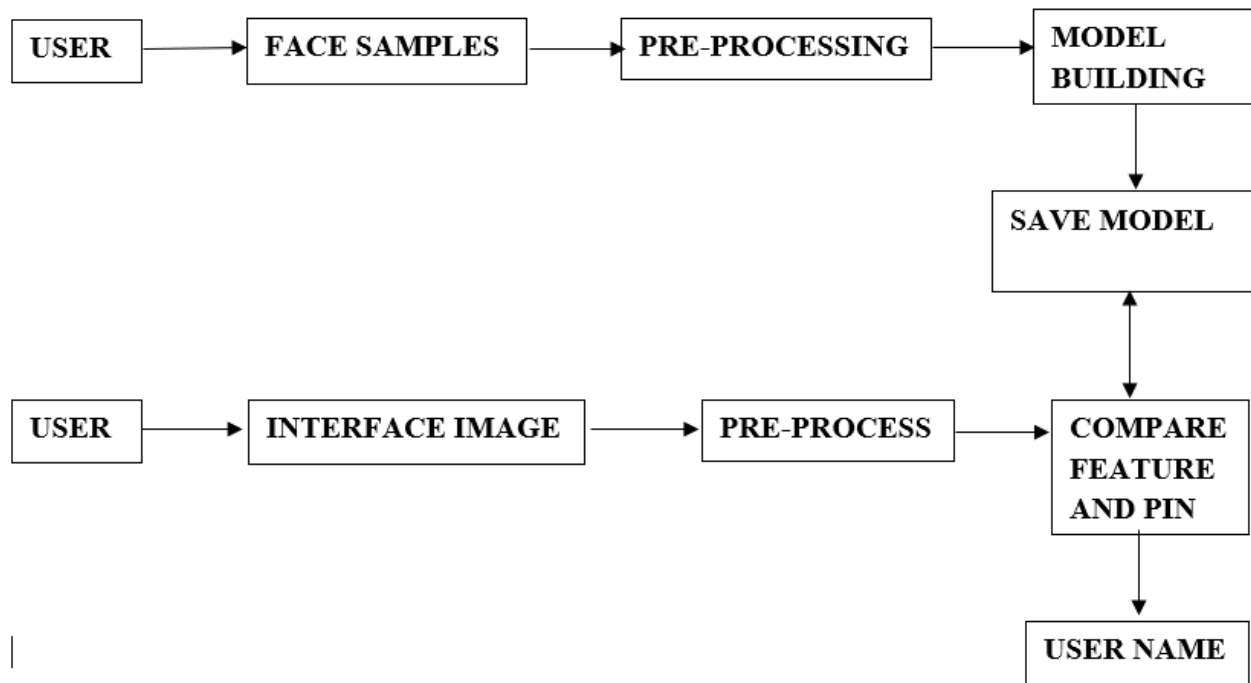
Block Diagram Of System

USER → FACE SAMPLES → PRE-PROCESSING → MODEL BUILDING → SAVE MODEL

USER → INTERFACE IMAGE → PRE-PROCESS → COMPARE FEATURE AND PIN → USER NAME

Fig 1: Block Diagram

Working

We propose a SVM model for user name prediction with higher accuracy. We are going to solve accuracy issue in diagnosis of fake accounts with accurate stage predictions. We take the video from user and detect the eye and its blink. Admin first gather the information about user. After gathering of information like preprocessing on the data, training of the data, model generation according to the features of the data. User inserts the Video the system will verify its PIN to existing and then system will predict its name.
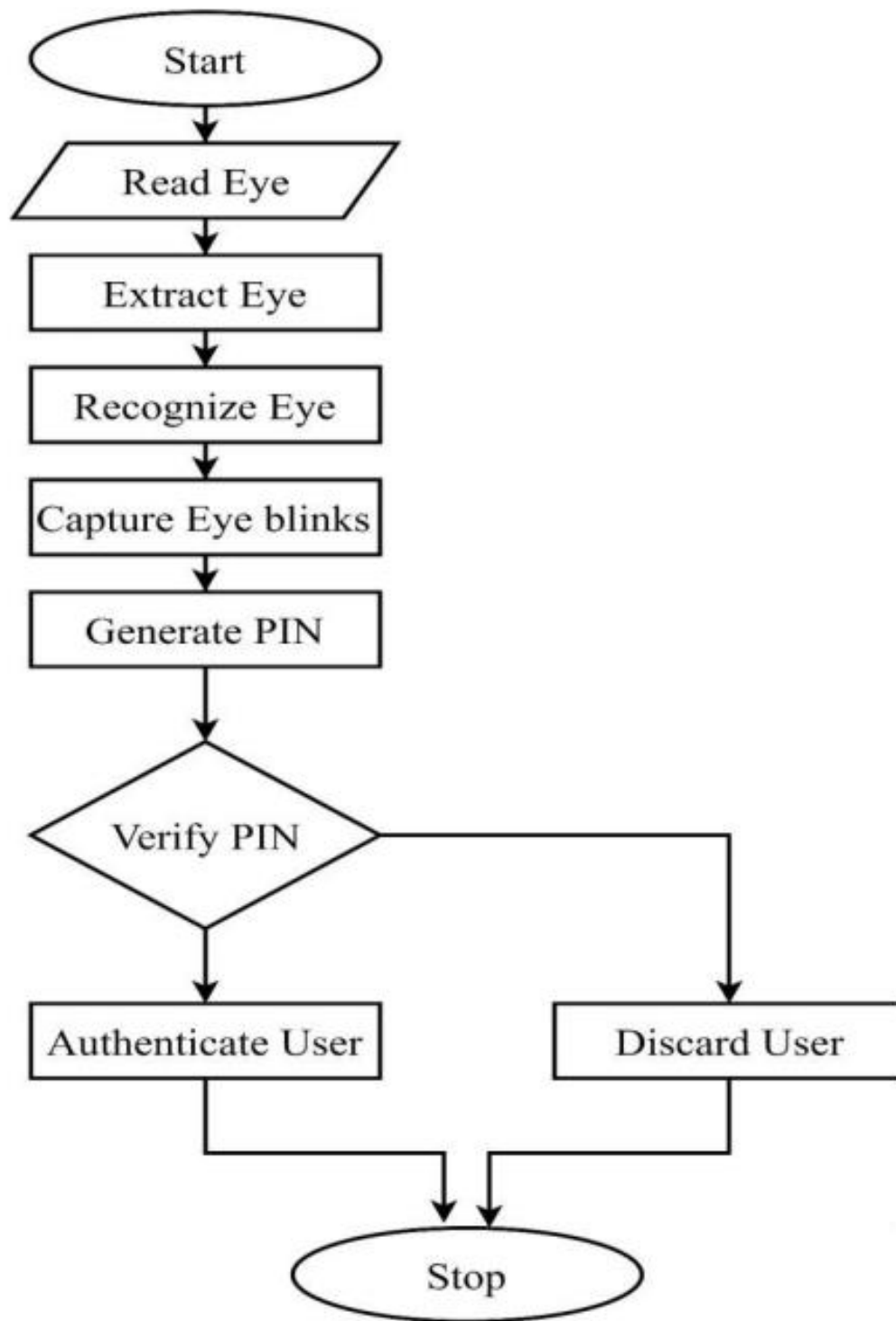
FLOW CHART

Fig 2: Flow Chart

SUMMARY

This is two step verification project, Blink Detection and Retina Detection. After detection of these, we are going to confirm the PIN with the detected eye and retina. If it matches with database we are going to display the user name. Our System will be helpful for the regular peoples who are technically not involved in daily life with background processes. This app will provide its user an concise way to perform a very necessary task. In our study precision of above 90% can achieve. Our proposed system could replace the hardware system in some initial stages of currency verification process.

Authentication systems in which eye is used for entering the password are categorized into two gaze-based and gesture-based groups. In the accurate point-of-regard gaze measurements, a key subject with gaze-based authentication schemes is needed. Gesture-based systems are based on identifying the eye movement tracking, hence, there is no need to estimate the precise point of the user's vision. Although gesture-based systems are superior to gaze-based methods, they are not appropriate and applicable in remembering the equivalent gesture of any suitable number due to the high memory overhead. This paper introduces the new Eye Gesture Blink Password authentication system (EGBP).

References

[1] S. Gowrisankaran and J. E. Sheedy, ''Computer vision syndrome: A review,'' Work, vol. 52, no. 2, pp. 303–314, Sep. 2015, doi: 10.3233/WOR-152162.

[2] N. L. Assefa, D. Weldemichael, H. W. Alemu, and D. H. Anbesse, ''Preva lence and associated factors of computer vision syndrome among bank workers in Gondar city, northwest Ethiopia, 2015,'' Clin. Optometry, vol. 9, pp. 67–76, Apr. 2017, doi: 10.2147/OPTO.S126366.

[3] J. K. Portello, M. Rosenfield, and C. A. Chu, ''Blink rate, incomplete blinks and computer vision syndrome,'' Optometry Vis. Sci., vol. 90, no. 5, pp. 482–487, May 2013, doi: 10.1097/OPX.0b013e31828f09a7.

[4] D. A. Schaumberg, D. A. Sullivan, J. E. Buring, and M. R. Dana, ''Prevalence of dry eye syndrome among US women,'' Amer. J. Oph thalmol., vol. 136, no. 2, pp. 318–326, Aug. 2003, doi: 10.1016/ S0002-9394(03)00218-6.

[5] E. K. Güler, I. Eşer, and S. Eğrilmez, ''Effectiveness of polyethylene covers versus carbomer drops (Viscotears) to prevent dry eye syndrome in the critically ill,'' J. Clin. Nursing, vol. 20, nos. 13–14, pp. 1916–1922, Mar. 2011, doi: 10.1111/j.13652702.2010.03559.x.

Name and Signature of Students

1)

2)

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Name and Signature of Guide